



261334

FIVE-YEAR REVIEW REPORT

Second Five-Year Review Report

for

MacGillis & Gibbs Company/Bell Lumber & Pole Company

City of New Brighton

Ramsey County, Minnesota

September 2006

PREPARED BY:

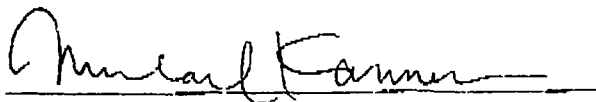
**Minnesota Pollution Control Agency
St. Paul, Minnesota**

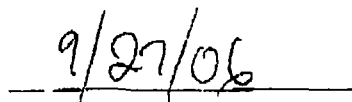
For the

**United States Environmental Protection Agency
Region V
Chicago, Illinois**

Approved by:

Date:





Michael Kanner

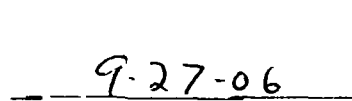
Manager

Superfund and Emergency Response Section

Approved by:

Date:





Richard C. Karl

Director

Superfund Division

United States Environmental Protection Agency, Region V

TABLE OF CONTENTS

LIST OF ACRONYMS
EXECUTIVE SUMMARY
FIVE-YEAR REVIEW SUMMARY FORM

I. INTRODUCTION	7
II. SITE CHRONOLOGY	8
III. BACKGROUND.....	10
Physical Characteristics	10
Adjacent Land and Resource Use	10
History of Contamination	11
Initial Response	11
Basis For Taking Action.....	12
IV. REMEDIAL ACTIONS	13
Remedy Selection	13
Remedy Implementation.....	15
System Operations and Maintenance	17
V. PROGRESS SINCE THE LAST REVIEW	19
VI. FIVE-YEAR REVIEW PROCESS	21
Administrative Components	21
Community Involvement	21
Document Review	21
Data Review	21
Institutional Controls.....	26
Site Visit	28
Interviews	28
VII. TECHNICAL ASSESSMENT.....	28
VIII. ISSUES.....	31
IX. RECOMMENDATIONS	31
X. PROTECTIVENESS STATEMENT	32
XI. NEXT REVIEW	33

APPENDIX A - FIGURES

- Figure 1 - Site Location Map
- Figure 2 - Groundwater Monitoring Well Location Map
- Figure 3 - Estimated PCP Contaminant and Capture Zone Map

APPENDIX B - BIBLIOGRAPHY

APPENDIX C –FIVE – YEAR REVIEW SITE INSPECTION CHECKLIST

-

APPENDIX D- NEWSPAPER ADD FOR FIVE- YEAR REVIEW

List of Acronyms

AOC	Administrative Order by Consent
ARARs	Applicable or Relevant and Appropriate Requirements
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	Contaminant of Concern
EPA	United States Environmental Protection Agency
HRL	Health Risk Level
IC	Institutional Control
MCES	Metropolitan Council Environmental Services
MCLs	Maximum Contaminant Levels
MDH	Minnesota Department of Health
MERLA	Minnesota Environmental Liability and Response Act
MPCA	Minnesota Pollution Control Agency
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
O&M	Operation and Maintenance
OU	Operable Unit
POTW	Publicly Owned Treatment Works
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective
RCRA	Resource Conservation and Recovery Act
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
SDWA	Safe Drinking Water Act
TBCs	To be Considereds

Executive Summary

The remedy for the MacGillis and Gibbs Company/Bell Lumber and Pole Superfund Site located in New Brighton, Minnesota included stabilization and removal of chromated copper arsenic contaminated soils, biotreatment of pentachlorophenol contaminated soils, installation of a cap over heavily contaminated organic soils, and a ground water pump and treat system to control the ground water plume and to remove groundwater contamination. The trigger for this five-year review was the completion date for the previous five-year review.

The assessment of the five-year review found that the remedy was constructed in substantial accordance with the requirements of the Record of Decision (ROD) and the ROD Amendment and that it remains protective of human health and the environment in the short term. The immediate threats posed by metals and organic contaminated soils have been addressed and the remedy is expected to be protective when ground water cleanup goals have been achieved by the ground water extraction and treatment system. The ROD estimated that groundwater cleanup goals would be achieved in 30 years.

The remedy is considered protective in the short term because there is no evidence that there is current exposure. However, in order for the remedy to be protective in the long term, ground water cleanup goals must be achieved, and the adequacy of institutional controls should be evaluated. In addition, the Agencies will consider whether to abandon the small number of privately owned wells in the plume area.

Five-Year Review Summary Form

<i>SITE IDENTIFICATION</i>		
Site name (from WasteLAN): MacGillis and Gibbs Company/Bell Lumber and Pole Company Superfund Site		
EPA ID (from WasteLAN): MND 006192694		
Region: 5	State: MN	City/County: City of New Brighton /Ramsey County
<i>SITE STATUS</i>		
NPL status: Final		
Remediation status: Complete		
Multiple OUs?: Yes	Construction completion date: 9/25/02	
Has site been put into reuse? Yes		
<i>REVIEW STATUS</i>		
Lead agency: State		
Author name: Nile Fellows		
Author title: Project Manager	Author affiliation: Minnesota Pollution Control Agency	
Review period: April 2006 through September 2006		
Date(s) of site inspection: 7/27/ 2006		
Type of review: Policy		
Review number: 2 (second)		
Triggering action: Previous Five-Year Review Report		
Triggering action date (from WasteLAN): 9/27/2001		
Due date (five years after triggering action date): 9/27/2006		

*["OU" refers to operable unit.]

**[Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form, continued.

Issues:

1. Need to confirm that all necessary restrictions for on-site use have been recorded in a legally binding manner.
2. A small number of private wells remain within the plume boundary without prohibition of use. These wells are not used for drinking water.

Recommendations and Follow-up Actions:

1. Develop an IC Action Plan that includes a provision for a) evaluating whether effective ICs have been implemented on-site; b) implementing corrective measures, if necessary; c) developing IC maps; and d) ensuring that effective procedures are in place to provide regular inspection of ICs at the site and annual certification to EPA that ICs are in place and effective.
2. Consider abandonment of the private wells.

Protectiveness Statement(s):

The remedy is considered protective in the short-term because there is no evidence that there is current exposure. However, in order for the remedy to be protective in the long term, ground water cleanup goals must be achieved and adequate institutional controls must be recorded to prevent exposure to contaminants in soil and ground water on-site. In addition, the Agencies will consider whether to abandon the small number of private wells remaining within the plume area.

Other Comments: None

**U.S. Environmental Protection Agency
Region V
2nd Five-Year Review
MacGillis & Gibbs Company/Bell Lumber & Pole Company
New Brighton, Minnesota**

I. Introduction

The U.S. EPA, Region V has conducted a five-year review of the remedial actions implemented at the MacGillis & Gibbs Company/Bell Lumber & Pole Company Superfund site in New Brighton, Minnesota. This review was conducted from April 2006 to September 2006. This report documents the results of the review. The purpose of five-year reviews is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of review are documented in five-year reports. In addition, five-year review reports identify deficiencies found during the review, if any, and identify recommendations to address them.

In cooperation with U.S. EPA, Region V, the Minnesota Pollution Control Agency (MPCA) is preparing this five-year review pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) § 121 and the National Oil and Hazardous Substances Pollution Contingency Plan (NCP). CERCLA §121(c), as amended, states:

If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgement of the President that action is appropriate at such site in accordance with section (104) or (106), the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions as a result of such reviews.

The U.S. EPA interpreted this requirement further in the NCP; 40 CFR § 300.430(f)(4)(ii) which states:

If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.

This is the second five-year review for this site. The triggering action for this review is the first five-year review which occurred on September 27, 2001. Due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure, this five-year review is required.

II. Site Chronology

Table 1 lists the chronology of events for the MacGillis & Gibbs/Bell Lumber & Pole site.

Table 1: Chronology of Site Events

Operable Unit 1/Operable Unit 3 Organic Contaminated Soils	Event
Date	
1979	Initial Discovery of Problem
1984	NPL Listing
12/31/92	RI/FS Complete
12/31/92	ROD Signature
9/30/99	ROD Amendment
12/14/99	Remedial Design Start
4/28/00	Remedial Design Complete
8/7/00	Remedial Action Start
11/16/01	Remedial Action Complete

Operable Unit 2	Event
Date	
9/30/91	RI/FS Complete
9/30/91	ROD Signature
5/3/93	Remedial Design Start
3/01/95	Remedial Design Complete
6/12/96	Remedial Action Start
5/28/98	Remedial Action Complete
9/97	LNAPL Extraction System Starts Operation
4/02	LNAPL Extraction system is turned off

Operable Unit 3 (Soils) (Metals Contaminated Soils) Date	Operable Unit 3 Ground Water Date	Event
9/22/94	9/22/94	RI/FS Complete
9/22/94	9/22/94	ROD Signature
3/31/95	3/31/95	Remedial Design Start
9/19/96	9/11/97	Remedial Design Complete
9/23/96	9/26/97	Remedial Action Start
2/16/98	9/25/02	Remedial Action Complete
-----	12/99	OU 3 Ground Water Extraction System Starts

Redevelopment Chronology

Date	Event
Fall 1997	City purchased MacGillis and Gibbs property
Spring 1998	Donatelle Plastics Phase I begins construction
Spring 2000	Main Street Village (strip mall) Begins
Fall 2000	Dalco Warehouse begins construction
Fall 2002	Donatelle Plastics Phase II begins construction
Fall 2002	Residential portion of Main Street Village Begins
Summer 2006	New Industrial tenants start design on South part of the site.

III. Background

Physical Characteristics

The MacGillis & Gibbs (M&G) and Bell Lumber & Pole (Bell) National Priorities List (NPL) Site consists of two adjacently located wood preserving facilities. The facilities are located in a mixed residential/commercial area within the corporate limits of the City of New Brighton, Ramsey County, Minnesota. The Bell facility is located on the western portion of the site and the M&G facility is located on the east. See Figure 1 for site location. The elevation of the site is between 900 to 920 feet above mean sea level. Surface drainage at the site is to the northeast toward 5th Avenue and to the southwest toward the Minnesota Transfer Railroad tracks and a formerly ponded area in the east-central area of the site ('the disposal area'). Residences lie to the north and northeast of the M&G facility. Commercial properties are to the east and south of the M&G facility and to the north of the Bell facility.

At the time response actions commenced, the areas comprising the site were zoned for industrial use with surrounding areas zoned for commercial and residential use. As discussed below, an agreement between the U.S. EPA, the MPCA and the City of New Brighton has enabled the City to open the MacGillis & Gibbs portion of the site to both industrial and commercial users.

Extensive redevelopment of the site has occurred including a strip mall (Main Street Village), two phases of Donatelle Plastics, and Dalco Enterprises. The City of New Brighton is exploring further development options on the remaining undeveloped portions of the site.

Bell entered into a Consent Order agreement with MPCA under the Minnesota Environmental Response and Liability Act (MERLA) in 1985 to perform an investigation and cleanup of its facility. MacGillis & Gibbs did not enter into a similar agreement. Because the cleanup at the Bell facility was undertaken under MERLA, the site cleanup under CERCLA has been solely related to the M&G facility. Thus, this five-year review is for the M&G facility only. Whenever “site” is referred to in this report, it is meant to apply to the M&G facility only.

Land and Resource Use

Both the M&G and the Bell facilities had been involved in wood preserving activities since the 1920's and the Bell facility is still active today. The M&G facility ceased operations in 1997. The M&G and Bell facilities were included as one site on the NPL because of their adjacent locations and similarities of processes and contaminants.

The site is located in New Brighton, Minnesota. See Figure 1 for the site location. Ground Water is used as the source of drinking water in the site area. The City of New Brighton has ten wells which supply drinking water to the area. These municipal wells draw water from the deeper aquifers including the Prairie du Chien formation, Jordan Sandstone, Mount Simon Sandstone, and the Hinckley Sandstone. These wells are between 400 to 900 feet deep. Seven of the municipal wells are located within 1-½ miles of the site, to the northwest, west and south. The majority of the residences in the area are served by the municipal wells; however, there are a limited number of private residential wells.

The hydrogeology at the site is characterized by a two-aquifer system within the glacial overburden. The uppermost aquifer consists of the unconfined New Brighton Sands and the lower aquifer consists of the Hillside Sands which is confined by the Twin Cities Till Formation. Ground water flow direction in these aquifers has been approximated based on several investigations in which ground water elevations were taken. Ground water elevations measured in monitoring wells in the New Brighton Aquifer indicate that there is a ground water divide which trends east to west in the vicinity of the former disposal pond. Under average climatic conditions, groundwater to the north and northeast of the disposal pond flows to the northeast, groundwater to the west flows to the west, and ground water south of the former disposal pond flows to the south. In the confined Hillside Aquifer, ground water elevation measurements indicate the ground water flow direction is to the north.

History of Contamination

M&G began wood preserving operations in the 1920's and has changed its processes several times over the years. Pentachlorophenol (PCP), creosote and Chromated Copper Arsenate (CCA) were used for the wood preserving process at various times. Wood preserving operations at the facility resulted in the discharge of contaminants to the soils. Contaminant sources from past operations include spills and leakage from waste PCP materials remaining in the abandoned PCP process/storage tanks and process piping. Spilled solution from the CCA treatment process and the dripping of solution from staged lumber were contaminant sources from the most recent operations at the facility. Creosote was used in the early years for wood treatment.

The disposal area was another source area of contamination. The disposal area was filled with wood chips, debris, and spent treatment solutions from the PCP process. A drain line from the PCP process area discharged water collected in piping vaults to the pond in the disposal area. It is likely that some of the process water from the PCP wood treating operations was also discharged via this line. Drum shells which had formerly contained copper chromium arsenic solution were also reportedly placed in the disposal area. PCP solution was also reportedly used as an herbicide for weed control at the facility from 1940 to 1974.

Initial Response

In 1979, the initial investigation at M&G was conducted after a spill of 4000 to 5000 gallons of chromated copper arsenate (CCA). A number of studies were conducted from 1981-1987 by both the MacGillis & Gibbs Company and the MPCA to define the extent of contamination and to propose cleanup activities. Significant contamination of the disposal area was found as well as contamination around the CCA and PCP process areas and in the ground water beneath the site.

The MacGillis & Gibbs/Bell Lumber & Pole site was included on the National Priorities List (NPL) in 1984. In 1988 U.S.EPA monitored some initial cleanup activities being performed by the MacGillis & Gibbs Company. Approximately 200 deteriorated drums of pentachlorophenol process wastes were stabilized in overpack drums and placed in a newly constructed storage facility. A Light Nonaqueous Phase Liquid (LNAPL) ground water plume was also detected and a pump out well was installed to begin the removal of this plume.

The M&G portion of the site has been divided into three operable units, as follows:

Operable Unit 1 (OU 1): Contaminated soils and debris in a former disposal pit area on the west edge of the M&G facility. Currently the contaminated soils are under a cap and serving as a parking lot. A high pressure gas pipeline runs under the cap in OU1.

Operable Unit 2 (OU 2): Light Nonaqueous Phase Plume (LNAPL) in the PCP process area and residuals and sludges contained in abandoned aboveground and belowground storage and process tanks. Removal and disposal of the above ground tanks and associated piping would also be included as part of OU 2.

Operable Unit 3 (OU 3): Contaminated soils (other than those addressed in OU 1), and ground water contamination. The underground tanks and vaults have been removed. Contamination which has moved off-site to the surrounding area, including small lakes, wetlands and a stream, is also addressed in OU 3.

Basis for Taking Action

Contaminants

Hazardous substances that have been released at the Site in each media include:

Ground Water

Pentachlorophenol
Arsenic
Chromium
Polynuclear Aromatic
Hydrocarbons

Soil

Pentachlorophenol
Arsenic
Chromium
Dioxin
Polynuclear Aromatic Hydrocarbons

The actual and potential threats at the site to human health at that time were chiefly due to ground water contamination and soil contamination. Potential carcinogenic (cancer causing) risks, as well as non-cancer causing risks were found for residents using ground water for non-drinking water purposes such as using a swimming pool and also being exposed to on-site soils. Carcinogenic risk for worker exposure to contaminated soils also exceeded U.S. EPA's upper range for acceptable exposure levels.

IV. Remedial Actions

Remedy Selection

In 1990 a Focused Feasibility Study was conducted by U.S. EPA. This study found contamination of soils in the PCP and CCA process areas, and PCP wastes were also found in abandoned tanks on site. Significant contamination of the ground water under the site in the upper aquifer was detected. The contaminant ground water plume was also found to be moving off-site. An additional study was proposed to further delineate the extent of contamination.

While the additional study was being performed, U.S. EPA issued an Interim Action Record of Decision in September 1991 for OU2 to control the spread of contamination from identified source areas into soils and ground water. The OU 2 remedy included:

- Construction of an extraction well and a ground water treatment facility for the removal of the LNAPL plume;
- Removal of the wastes in the abandoned aboveground and belowground storage and process tanks; and
- Demolition and removal of aboveground storage tanks.

A Focused Feasibility Study was conducted in 1992 by the MPCA on OU 1 which included contaminated soils and wood debris, sediments and a pond in the disposal area of the site. Additionally, a high pressure gasoline pipeline runs through this area. The MPCA and U.S. EPA subsequently issued a source control Record of Decision for OU 1 in December 1992 which included:

- Incineration of wood debris and soil washing of soils and sediments; and
- Treatment of residuals from the soil washing process by either bioremediation, incineration, or solidification/stabilization.

The ROD for OU1 required that treatability studies be performed on the soil treatment technologies to determine their effectiveness. The ROD indicated that if these technologies prove to be ineffective for soils, a contingency remedy will be incineration.

U.S. EPA completed its Remedial Investigation (RI) and Feasibility Study (FS) for OU 3 in 1994. The RI sampling determined that there were soils contaminated with organics (PCP, creosote, and small amounts of dioxins and furans) in and around the PCP process area and soils contaminated with metals (chromium and arsenic) in and around the CCA process area. The New Brighton Aquifer, which is the shallow aquifer beneath the site, was found to be contaminated with both organics and metals. The contaminant plume was found to have moved off-site to the northeast in the New Brighton Aquifer. Ecosystems (small lakes, wetlands, and a stream) near the site were also found to be contaminated. U.S. EPA subsequently issued a ROD for OU 3 in September 1994 which included:

- On-site incineration of organic soils in the PCP process area of the site;
- Solidification of metals contaminated soils in the CCA process area of the site and off-site disposal;

- Ground Water extraction and treatment of the on-site and off-site contaminated ground water plume in the New Brighton Aquifer;
- Long term ground water monitoring of the New Brighton and Hillside Aquifers and long term monitoring of contaminated ecosystems adjacent to the site; and
- Institutional controls including deed restrictions limiting use of ground water in contaminated areas and if necessary, future abandonment of residential wells impacted by contamination.

In September 1999, a ROD amendment was issued for both OU1 and OU 3 organic-contaminated soils due to the high cost of incineration, the high cost and unreliability of the soil washing technology, and risk-based management approaches based on land use. Note that it was decided to combine the remediation of the OU 3 organics-contaminated soils with the OU 1 organics-contaminated soils due to the similarity of the contamination and the cost effectiveness of remediating the soils in a single construction contract. The main components of the ROD amendment are:

- Excavation of wood debris, concrete and metal in the disposal pond area of OU 1 area and decontamination and disposal in an off-site RCRA landfill;
- Excavation and treatment of more contaminated soils from OU 1 and OU 3 with a combination of biopile and oxidation and reduction processes;
- Backfilling of treated soils on-site that meet site cleanup goals and off-site disposal of the remainder of the soils in a RCRA Subtitle C landfill;
- Consolidation of less heavily contaminated soils into OU 1 disposal pond area and capping the area with a RCRA Subtitle C cap; and

Institutional controls, including deed restrictions, to limit the potential for exposure to contaminated soils beneath the cap.

The ROD Amendment also stated that if on-site treatment failed to achieve RCRA land disposal restrictions, the soils would be further treated in an off-site incinerator rather than be disposed of in an off-site landfill.

Remedy Implementation

Since the potentially responsible parties at the site were not financially viable, the remedial action at the site was fund-financed. A settlement was reached under which the corporate responsible party agreed to bring claims against its insurance companies with net proceeds paid to the U.S. EPA and the MPCA. This settlement resulted in recovery of some response costs from the insurers.

Operable Unit 2

OU 2 was the first portion of the project to begin construction. An advertisement for bids occurred in March 1995 but the receipt of bids had to be delayed due to the unavailability of remedial action funds at that time. Funds became available and bids were opened in October 1996. Only two bids were received and one of the bids was non-responsive and thus both bids were rejected. Finally, in December 1996 eleven bids were received and a construction contract was awarded. The OU 2 Remedial Action (RA) construction activities took place from April 1997 to March 1998.

As part of the OU2 RA, 21 process tanks and vaults were cleaned of residual process oils and sludges. Approximately 40,000 gallons of waste oils and 80 cubic yards of sludges were removed and shipped to an off-site incinerator. The nine above-ground silo tanks were demolished, decontaminated and steel recycled to a scrap dealer. Below ground tanks were left in place to be remediated later with the OU 1/OU 3 organic soils. The OU 2 RA also included the construction of a NAPL extraction well and on-site NAPL/ground water treatment facility. The NAPL extraction well included both a NAPL extraction pump and also a ground water pump to create a drawdown of ground water which would then cause NAPL to pool at the extraction well. This treatment facility was intended as an interim action solely to remove the LNAPL source materials. The on-site treatment plant for OU 2, which was a biological type facility, consisted of an oil/water separator, the biological reactor unit, a settling tank and carbon adsorption polishing units. A pre-final inspection was conducted on February 10, 1998, and a RA report was completed May 28, 1998.

Operable Unit 3 Metals-Contaminated Soils and Ground Water

The design of OU 3 RA began in March 1995. It was decided to remediate OU3 in two construction contracts, one contract for ground water facilities and the other for metals-contaminated soils. The OU3 organic contaminated soils were to be included in the OU1 remediation. During the design work for the metals contaminated soils, additional field sampling was conducted to define contamination along railroad tracks contiguous to the M&G facility, define contamination under site buildings and the concrete treatment pad and to define the limits of the metal contamination on the site. The OU3 metals contaminated soil RA construction contract began in July 1997.

A total of 14,831 cubic yards of metals contaminated soils were excavated from the CCA treatment area of the site. Approximately 45 percent of the soils required treatment by solidification prior to disposal in a RCRA Subtitle C landfill. The site treatment buildings and the concrete CCA drip pad were also demolished. Approximately 2000 tons of concrete from the building floors and the drip pad were found to be contaminated and were treated through use of a microencapsulation process before being disposed of in a RCRA Subtitle C facility. A gasoline pipeline owned by the Williams Pipeline Company was located in the OU 3 metals-contaminated soil area and excavation around the pipeline was conducted in accordance with Williams Pipeline and U.S. Department of Transportation regulations. A Pre-final inspection was done on December 17, 1997 and a punch-list of items was developed. It was discovered that some soil contamination remained in the soil stabilization pad area and an additional 1200 cubic yards of soil was removed. A final inspection was conducted on January 31, 1998 and an RA report was completed on September 14, 1999.

The OU 3 ground water construction contract began in July 1998. The main components of this contract were an on-site ground water treatment plant facility similar to the biological facility constructed in OU 2 and 14 ground water extraction wells. The treatment process train is very similar to that discussed above for OU 2. While the OU 3 ground water treatment plant is similar to the OU2 facility, it is much larger and is intended to address the area-wide ground water contamination from the site. The facility was designed to treat 50 gallons per minute of contaminated ground water. The facility was also designed with flexibility such that less contaminated water from individual wells can be directed to the carbon units at the plant for polishing only and then subsequent discharge, thus reducing the need for full scale and more costly treatment. Some of the ground water extraction wells discharge directly to the sanitary sewer system without treatment since the contaminant concentrations of ground water in these wells meet the treatment requirements of the Publicly Owned Treatment Works (POTW). The construction contract was substantially completed in December 1999, however, two additional extraction wells were constructed in October 2002. A pre-final inspection was conducted on September 25, 2002 and an RA report was completed on September 17, 2003.

Operable Unit 1/3 Organic-Contaminated Soils

The OU 1 and OU 3 organic contaminated soils construction contract began in August 2000. The project was divided into two parts: 1.) The biotreatment of soils using biopiles 2.) The removal of debris from OU 1 and installation of a RCRA landfill cap.

Approximately 18,212 cubic yards of soil (16,192 cubic yards from OU 3 and 2,020 cubic yards from OU1) were taken to the south end of the MacGillis & Gibbs Company property for biotreatment. The piping for air flow and moisture addition was completed in October 2000.

Treatment of the soils has resulted in 15,380 cubic yards of soil having met site clean up goals and 2,832 cubic yards meeting off-site landfill disposal requirements. In general, the treatment results were very good despite a very cold winter from November 2000 through March 2001.

Construction in OU 1 was conducted from August through November 2000 and consisted of screening wood, concrete and metal debris from the soils and installation of the landfill type cap over two thirds of the OU 1 area which was then overlain by an asphalt parking lot. Work was stopped in November 2000 because of the need to relocate the gasoline pipeline which runs through a portion of the OU 1 area. Another limiting factor was coordination with the City to allow installation of a warehouse building adjacent to the remediation area, which limited space for the remediation work

The Agencies completed negotiations with the gasoline pipeline company for relocation of the pipeline. The relocation of the pipeline was completed by the end of September 2001.

Upon completion of the pipeline relocation, the remaining portion of OU 1 was excavated, debris removed and cap installation finished in November 2001. In OU 3, some additional soils were removed along with some LNAPL-contaminated soils. The last of the bio-treated soils were removed October 10-11, 2002.

Systems Operations and Operation and Maintenance

The system operations at the site consist of the operation and maintenance of the OU 3 groundwater treatment systems (treatment plants and extraction wells) and periodic maintenance of the cap in OU 1 which is part of a parking lot and berm. The OU 2 treatment facility which began operation in September 1997 was shut down in April 2002 because it was determined that no further LNAPL could be removed. The OU 3 treatment facility began initial operation in April 1999 after the first phase of the ground water extraction wells were completed and essentially full operation of OU 3 began in December 1999.

MPCA staff and U.S. EPA's contractor periodically inspect the asphalt cover/parking lot which covers part of the liner in OU 1. In an agreement through the City of New Brighton, Dalco Companies, which occupies the site, is required to maintain the asphalt. Dalco also mows the berm. The MPCA is responsible for the berm should any repairs be required. At the time of the inspection, the asphalt and the berm were in good condition.

The operation and maintenance of the OU 3 facility had originally been contracted to Black & Veatch Special Projects Corporation, (the constructors of the facility) which subcontracted the daily operation and maintenance of the facility to Carbonair, Inc.

In September 2000, U.S. EPA decided to consolidate the operation and maintenance of the OU 2 and OU 3 facilities to a single contractor, CH2M Hill. CH2M Hill then subcontracted with a new O&M subcontractor, EFS. This consolidation effort was intended to reduce the time in administering two contracts and it was also anticipated that having one contractor could be more efficient and result in some cost savings. CH2M Hill and EFS are currently operating the OU 3 facility and will continue to run the facility until 2011 under contract to the U.S. EPA.

The MacGillis & Gibbs OU2 and OU 3 treatment systems were evaluated by U.S. EPA Headquarters Technology Innovation Office (TIO) as part of a national project to demonstrate the application of optimization techniques to ground water pump and treat systems. A visit to the site by the TIO team occurred in June 2000 and a report on the findings and recommendations called a Remediation System Evaluation (RSE) Report was completed in February 2001. The RSE report made recommendations to reduce costs and to improve system performance. Region V and its contractors had also been planning some changes to optimize performance. As a result of the RSE recommendations and Regional actions, the following changes were made:

- The OU2 LNAPL extraction well and treatment plant were shut down in April 2002 because it was determined that very little additional LNAPL could be removed.
- The carbon polishing filters were shut down. The associated bag filters which remove solids prior to the carbon filters were also eliminated.
- Approval was obtained from the POTW to reduce permit sampling at the extraction wells which discharge directly to the sanitary sewer system.
- The boiler and heat exchanger that controlled the temperature of the water entering the bioreactor were eliminated because it was determined colder ground water could effectively be treated by the bioreactor.

Current Operation and Maintenance Costs for OU 3

The OU 3 ground water treatment and extraction system began partial operation in December 1999 and full operation in October 2002. Table 2 lists annual costs for the site from September 2003 through September 2005. The O&M costs in Table 2 include system repairs, utilities, operator salaries and also all time expended for U.S. EPA's contractors to consult on system problems, perform annual ground water sampling and provide general oversight of the facilities. It can be seen that a substantial amount of money per year is required to maintain the remedy.

Table 2: Annual Costs from 9/30/03 to 9/30/05

	Annual Consulting (Per Year)	Annual O&M (Per Year)	Total Annual Costs (Per Year)
OU3 (9/30/03-9/30/05)	\$230,000	\$315,000	\$545,000

V. Progress Since the Last Review

Since September 30, 2001, the following Remedial Actions have been completed:

- OU1 cap was completed November 2001.
- OU3/OU1 organic contaminated soils treatment and disposal completed August 2002.
- OU3 ground water extraction system completed September 2002. Long-term remedial action is ongoing including ground water monitoring and system evaluation.
- Donatelle Company expanded its building on the MacGillis & Gibbs site. The expanded building covers most of the OU3 area that was remediated for organic contaminated soils. Office buildings and a strip mall were constructed on the northern portion of the site and a janitorial supply warehouse was also constructed.

The last Five-Year Review, completed in 2001, contained several recommendations that are summarized as follows:

- 1.) Issue: It was discovered during design sampling activities that the ground water contaminant plume is larger than originally presumed in the ROD.

Recommendation: A residential well survey should be performed to cover all residences in the larger plume area.

Follow-up: A residential well survey was conducted in Spring/Summer 2006 in the area of the plume northwest of the site. Ninety six surveys were distributed door to door. Forty responses were received and four residences had private wells on their property. All four residents indicated that the wells are not being used for any purposes.

- 2.) Issue: The fringe areas of the ground water plume where contaminant levels are low, yet still exceed MCLs, are not currently being captured by the ground water extraction system. Recommendation: Because the contaminant levels in these fringe areas of the plume were relatively low, it was initially decided not to construct additional extraction wells to remediate these areas. It was anticipated that Monitored Natural Attenuation (MNA) would be the most appropriate remedy for this area. Past sampling conducted by U.S. EPA to determine if aquifer conditions were conducive to natural conditions had shown some indication that natural attenuation may be occurring but was not conclusive. It was recommended that additional sampling be performed to make a final decision on the viability of MNA for these areas. If MNA was not viable, alternative remedial actions will be considered.

Follow-up: The additional sampling confirmed that aquifer conditions were not conducive to natural attenuation of the fringe areas of the plume. Therefore, two additional extraction wells (extraction wells EW 3B and EW 18) were constructed in 2002 to capture the contamination in these areas.

- 3.) Issue: Deed restrictions have not been filed to limit the use of ground water in off-site contaminated areas.

Recommendation: Deed restrictions had not been filed for off-site properties which have contaminated ground water beneath them. In addition, the City of New Brighton did not have an ordinance prohibiting construction of private wells. It should be noted that the contaminant plume underlies a substantial number of properties and that filing deed restrictions would be a substantial effort over a long period of time. An evaluation should be performed to determine whether a new City ordinance controlling well construction in the area of contamination or a special well construction area designation by the Minnesota Department of Health would be more easily implemented than filing deed restrictions on a large number of properties. However, a reliable way of informing purchasers of the properties would still be needed.

Follow-up: See the discussion on institutional controls in Section VI of this report .

- 4.) Issue: The Optimization Study performed for the OU 2 and OU3 treatment facilities identified several areas for optimization.

Follow-up: The recommendations from the RSE Study performed by U.S. EPA's TIO office were discussed in Section IV.C. - Systems Operation of this report.

The site inspection conducted on September 6, 2001, noted several issues to be corrected for ground water extraction wells. These actions were subsequently completed.

VI. Five-Year Review Process

Administrative Components

The Five-Year Review was initiated on April 13, 2006. The review components included:

- Community Involvement;
- Document Review;
- Data Review;
- Site Inspection;
- Local Interviews; and
- Five-Year Review Report Development and Review.

The Members of the review team included:

Darryl Owens, Remedial Project Manager, U.S. EPA

Nile Fellows, Project Manager, MPCA

Community Involvement

On April 13, 2006 a notice was published in the New Brighton Bulletin newspaper announcing that a five-year review was being conducted for the MacGillis and Gibbs Superfund Site. No comments have been received.

Document Review

This five-year review consisted of a review of relevant documents including the RODs, annual groundwater cleanup assessment reports, MPCA staff correspondence and the previous five-year review report. A list of the documents reviewed is presented in the bibliography which is Appendix B to this report.

Data Review

Ground Water Monitoring

Annual monitoring of groundwater in the New Brighton Aquifer is performed at the MacGillis & Gibbs site to assess the performance of the groundwater extraction system. The two primary purposes of the monitoring are to assess whether the system is capturing the ground water plume and also to evaluate the progress being made towards achieving the ground water cleanup goals.

Baseline sampling was performed in 1999 to establish the ground water contaminant concentrations that existed prior to the initiation of pumping by the ground water extraction

system. Five annual sampling events have been performed since 1999 with the most recent sampling occurring in November 2005. The objectives of the annual sampling are as follows:

- Perform water level monitoring to determine whether hydraulic control has been achieved by the extraction system and pentachlorophenol (PCP) and chromium plumes are being captured by the ground water extraction wells.
- Provide ongoing monitoring data and chemical analysis for ground water monitoring wells in both the New Brighton and Hillside aquifers.
- Compare the ground water analytical data to the 1999 baseline sampling results to evaluate the effectiveness of the extraction system and assess the degree of progress made towards achieving final cleanup goals, as specified in the ROD.
- Evaluate the monitoring data and trends in concentrations to assess the need for modifications to the existing remedial actions and future monitoring requirements.

A total of 56 wells were sampled during the November 2005 sampling round. Of this total, 51 specific wells were sampled for PCP, three specific wells were sampled for carcinogenic polynuclear aromatic hydrocarbons (cPAHs), 17 specific wells were sampled for chromium and arsenic, and four specific wells were sampled for dioxins. See Figure 2 for the location of site monitoring wells.

Results of the chemical analysis of water samples collected from the New Brighton Aquifer during the five annual monitoring events can be used to evaluate possible trends over time. PCP is the most widespread of the chemicals of concern and exceeds the cleanup goal in the greatest number of wells. PCP is also used as the indicator of the spatial extent of the plume. A total of 16 monitoring wells in the New Brighton Aquifer exceeded the cleanup goal of 1 ug/l in the November 2005 sampling.

However, of these 16 wells that exceeded the cleanup goal, six wells have shown a consistent decrease in PCP concentrations from 2003. Three other wells that had exceeded the PCP cleanup goal in the previous round of sampling in February 2005 were below the cleanup goal in November 2005.

The PCP concentration in monitoring well (MW) 115 was non-detect, consistent with the non-detect result from February 2005, and continues to define the extent of the plume in the north-central portion of the study area. MW115 is located in the vicinity of extraction well EW1, which appears to capture the plume in this area. The westernmost monitoring wells in the study area (MW117, MW119, MW26W, MW26B, MW111A, MW112, MW27W, MW27B, and MW109) remain non-detect. The PCP results in western well MW110 have fluctuated from 3.9 µg/L (2002), to 52 µg/L (2003), to ND (February 2005), to 4 µg/L (November 2005). Therefore the edge of the plume near extraction well EW16 is between MW110 and RW14C. PCP concentrations in well MW118 have consistently decreased from 150 µg/L (2001) to 71 µg/L (November 2005). Therefore, MW118, MW26W, MW26B, and MW119 define the edge of the western portion of the plume in the vicinity of extraction well EW18. Monitoring well MW19B to the east of the site has had constantly decreasing PCP concentrations of 4900 ug/l (1999), 1500 ug/l (2002), 590 ug/l (February 2005) and 490 ug/l (November 2005). MW 19B is located adjacent to eastern extraction well EW5. This decrease in concentration indicates the effectiveness of the ground water pumping from EW5. PCP concentrations exceeding the groundwater cleanup objective were found in a total of 16 of the 51 wells sampled and analyzed for this compound in November 2005; this is similar to the 16 of 48 wells in February 2005. Thus, the extraction system is preventing additional migration of impacted groundwater from the M&G site.

Arsenic and chromium in the New Brighton Aquifer were present in November 2005 at concentrations similar to those detected during previous sampling events. For wells located in similar areas, the arsenic and chromium results from 1999 through November 2005 are consistent. Only two monitoring wells (MW23W and MW 25B) exceeded the arsenic cleanup goal of 5 ug/l. The November 2005 arsenic concentration in MW23W (23.8 ug/l) and MW25B (10.7 ug/l) is similar to the previous detected concentrations. The arsenic found in MW 25B, which is northwest of the site, may not be site related in that metals ground water contamination is predominantly either on-site or east of the site. Only two monitoring wells, MW20 and MW21B located east of the site, exceeded the chromium cleanup goal of 100 ug/l. The November 2005 chromium concentration in MW20 of 2240 ug/l was approximately one-third of the February 2005 concentration of 7630 ug/l. The November 2005 chromium concentration in MW21B of 1980 ug/l was slightly higher than the February 2005 concentration of 1270 ug/l. Both of these wells are located in the vicinity of extraction well EW3B which appears to be capturing the contamination based on the elevated levels of chromium found in EW3B as part of its discharge sampling.

As can be seen above, for wells in which a direct comparison can be made of concentrations for different rounds of sampling, arsenic and chromium concentrations have not changed significantly.

Total cPAH concentrations in the New Brighton aquifer have decreased based on a comparison of recent rounds of ground water sampling to historic and baseline sampling. Results of analytical tests on water from the three wells sampled and analyzed for cPAHs in November 2005 were non-detect.

Four ground water samples were analyzed for dioxin in November 2005. Dioxin detected above the cleanup objective in the sample collected in November 2005 from MW3W is located in the site source area. Ground water that contained dioxin from the 1999 sampling (EW8) was also located in the site source area and is being contained by extraction wells EW9 and EW10. Water from these wells is pumped to the on-site treatment plant prior to discharge and monitoring of the plant discharge has not detected dioxin. For these reasons, dioxin has been sampled less frequently than other parameters. Although extraction well EW8 was designed to capture impacted ground water, it is currently being used to manually extract free product on a weekly basis. As required by the MCES permit, dioxin will continue to be monitored every third year by the plant operator's sampling program.

Two of the Hillside Aquifer wells, MW3H and MW11H, were sampled in November 2005 for arsenic, chromium, and PCP. These Hillside Aquifer wells were sampled to monitor the potential for impacted ground water to migrate from the shallower New Brighton aquifer to the deeper Hillside aquifer. Arsenic was detected in these Hillside wells at concentrations of 64.8 ug/L (MW3H) and 3.0 ug/L (MW11H). The main concern with the Hillside aquifer has been the widespread distribution of arsenic at varied concentrations. The arsenic concentrations, which in the majority of the Hillside aquifer wells are higher than those noted in the New Brighton aquifer samples, are likely to be ubiquitous in this aquifer or to have originated from a source other than the M&G site. Chromium and PCP concentrations in these Hillside wells were non-detect.

Ecological Monitoring

Surface water, sediment, fish and crayfish samples were collected from ecological habitats near the site in July 2005. Surface water, sediment, and fish and crayfish sampling had previously been performed as part of the site Remedial Investigation in 1992. The 2005 samples were analyzed for the contaminants of concern including arsenic, chromium, copper, PAHs, PCP and dioxins/furans. Figure 3 shows the site location and the locations of ecological habitats which were sampled in 2005.

The findings of the 2005 sampling are shown below:

- The 2005 surface water data did not show any risks to aquatic life from site related chemicals. Hexavalent chromium, PAHs and PCP were not detected in the samples. There were no exceedances of surface water quality criteria for arsenic, chromium and copper in filtered samples.
- Arsenic, chromium, PCP, PAHs and dioxin/furans were elevated above background and/or risk based benchmarks in sediment from Farrel's Lake and Hansen's Wetland, the two water bodies closest to the site. However, no toxic effects on growth or survival were observed in toxicity tests conducted with the sediment from these water bodies. The toxicity tests were performed on benthic organisms by comparing survival rates in sediments from the water bodies (field samples) to sediments from clean laboratory control samples. The survival rate of the benthic organisms in the field samples was from 96% to 100% and 99 % in the control samples. Thus, there was no significant difference in survival rates between the field samples and the laboratory controls. The toxicity tests also showed that the organism growth rates were 30-50 percent higher in the field samples than the laboratory control samples. These results suggest that the current elevated levels of chemicals in sediments in Farrel's Lake and Hansen's Wetland pose no risk to benthic life.
- Fish and crayfish were analyzed for PCP, Tetrachlorophenol (TCP) and dioxin/furans. With one exception, PCP and TCP were not detected in fish or crayfish samples during the 2005 sampling. Dioxins/furans were routinely detected, but the concentrations in biota from Farrel's Lake and Hansen's Lake were similar to background and less than risk-based benchmarks. These risk-based benchmarks were for heron and mink, wildlife species that prey on small fish and crayfish. The concentrations of dioxin/furans, as well as PCP and TCP, found in fish and crayfish were well below the heron and mink "prey benchmarks".
- The 2005 sampling data were also compared to the 1992 sampling data. In surface water, the levels of arsenic, chromium, copper, PCP and PAHs decreased or remained the same in Farrel's Lake, Hansen's Wetland and Schmidt's Pond between 1992 and 2005. No changes in levels of TCP and PCP in fish from Farrel's Lake and Schmidt's Pond were found between 1992 and 2005. A consistent pattern of change in levels of sediment contamination from 1992 to 2005 was not evident in ecological habitats studied.

Capture Zone Effectiveness Analysis

In addition to performing ground water sampling to evaluate progress in reducing chemical contaminant concentrations, ground water level measurements are analyzed annually to evaluate the effectiveness of the ground water extraction in capturing the contaminant plume. The ground water level measurements are analyzed by using a computer program. The computer program generates stream traces of fictional particles positioned around the M&G facility outside (downgradient) of the groundwater extraction system capture zone (See Figure 4). The particles are backtracked (moved upgradient) by the computer program to determine where particles, which may have escaped the system, originated. The capture zone analysis is performed by overlaying the most recent chemical data for the PCP plume with the particle tracking.

Where particle streamlines in Figure 4 are not visible within the contaminant plume, the groundwater extraction system is effectively capturing the plume. The lack of particle streamlines show that extraction wells EW-9, EW-10 and EW-11 are successfully capturing the PCP plume in the source area of the site. Similarly, extraction wells to the north and northeast of the site (EW-1, EW-4, EW-7, EW-5 and EW3-B) appear to produce adequate capture to effectively contain the ground water with concentrations above cleanup goals in that area. Capture of ground water from the disposal pond area westward appears to be sufficient with extraction wells EW-12 and EW-13. The area between EW-15 and EW-16 shows particles migrating from the impacted groundwater area beyond the extraction wells. Low pumping rates due to poor aquifer transmissivity and insufficient aquifer thickness inhibit the efficiencies of extraction wells in this area.

Extraction rates for EW-15, EW -16 and EW-18 were not optimum at the time that water level measurements were conducted. The poor aquifer conditions inhibiting pumping by EW-15 and EW-16 in this area were discovered during the construction of the ground water extraction system. Extraction well EW-18 was constructed after the original system was completed to serve as a “backup” well at the plume fringe to catch any contamination that would escape EW-15 and EW-16. Considerable effort was made to find the best location possible for EW-18 and special construction methods were used to optimize its capture zone. In general, EW-18 does effectively contain the edge of the contaminant plume. Efforts will be made to optimize pumping rates in EW-15 and EW-16 to the extent possible.

Implementation of Institutional Controls and Other Measures

Institutional controls (ICs) are non-engineered instruments, such as administrative and legal controls that help to minimize the potential of exposure to contamination and that protect the integrity of the remedy. Institutional controls are required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure

The OU 3 ROD stated that institutional controls would be implemented, including deed restrictions limiting the use of ground water in contaminated areas and if necessary, future

abandonment of residential wells impacted by contamination. Since the issuance of the ROD, the City of New Brighton has purchased the M&G property, and the City, the MPCA and U.S. EPA have signed a Prospective Purchaser Agreement (PPA) and Covenant Not to Sue. The PPA indicates that ground water at the site is not to be disturbed or utilized in any way except for dewatering during construction activities. The OU 1/OU 3 ROD amendment for organic soil contamination included deed restriction requirements to prevent exposure to soils under the cap. Similar to its prohibition on ground water, the PPA places restrictions on the disturbance of soils.

In this respect, the PPA divides the Site into zones, within which restrictions are prescribed in accordance with known concentrations of contaminants for the affected area. The zone in which the cap is located is the most restrictive at the site for disturbance of soil. The PPA also requires the City, when it conveys parcels of the M& G site property to third parties, to obtain the purchasers' agreement to use restrictions as a condition of sale in accordance with language prescribed by U.S. EPA and MPCA. The restrictions operate through a conservation easement in accordance with State law. Because of the extensive redevelopment at the site, a number of property transfers have occurred. The U.S. EPA and the MPCA will review a site title commitment document which identifies the conservation easements for each property transfer to ensure that all restrictions are in place.

A number of off-site properties have ground water contamination from the site underlying them. However, there are only a small number of residential wells in the area, as all City of New Brighton residents are on municipal wells. The residential wells that are located in the shallow New Brighton Aquifer are not used as a primary drinking water source, rather these wells are used for lawn or garden watering. Since the early 1990's, several residences have abandoned their wells.

Because there are hundreds of residences which have contaminated ground water beneath them, placing deed restrictions on each residence would be a time consuming and expensive effort. A more efficient means of restricting ground water use would be a governmental legal instrument. A Special Well Construction Area has been designated by the Minnesota Department of Health (MDH) for the area that includes the contaminant plume from the MacGillis & Gibbs facility. This special well construction area was designated by the MDH because of contamination from an adjacent Superfund site in the City of Arden Hills called the Twin Cities Army Ammunition Plant (TCAAP). This special well construction area requires well drillers to obtain approval from MDH prior to construction of a new well. A new well must also be sampled for contamination prior to MDH approving its use. Since the MacGillis & Gibbs site is within the boundary of the TCAAP Special Well Construction Area (SWCA), the MDH considers all requirements of the SWCA to apply to the aquifers impacted by the site and the wells that are constructed within those aquifers.

The SWCA appears to adequately control construction of new wells in the aquifer and thus, the Agencies do not see a need to place deed restrictions on each residence in the plume area. Again, given the fact that the City of New Brighton has a municipal water supply, construction of private wells would be extremely unlikely.

As discussed earlier, the recent residential well survey for the expanded area of the groundwater plume located four private residential wells. There is also an additional residential well within the originally defined plume. The four newly identified wells are not used at all and the other remaining well is not used for drinking water. In the exercise of caution, however, U.S. EPA and MPCA will consider whether it is appropriate that these wells be abandoned to prevent the possibility that future property users would use the water for consumptive purposes.

A series of IC maps (paper and Geographical Information System (GIS) versions) will be developed which depict the areas subject to use restrictions. These maps will depict and overlay the areas affected by contamination, areas which require land and groundwater use restrictions, and the property parcel information for that area. These maps will be made available to the public on U.S. EPA's Superfund Data Management System (SDMS) and will serve as an additional informational institutional control.

Site Inspection

Representatives of the MPCA performed a site inspection on July 27, 2006. The inspection evaluated the treatment buildings, cap and berm. The buildings are well maintained. Four wells pump approximately 38 gpm through the biotreatment unit. The carbon filters are not being used, based on the RSE study recommendations. The OU 2 LNAPL treatment building is no longer used and has unused pipes and equipment that should be removed. Plans are currently underway to clean the pipes and equipment and to send the pipes and equipment off-site. One well, EW-15, was not currently operating because of a lightning strike. The LNAPL which is manually extracted from NAPL in well EW-8 on a weekly basis produced 1.5 gallons of product during the inspection. This is much reduced according to the operator, although the amount extracted varies by season.

The cap, which is now part of a parking lot, is appropriately maintained. The berm was also in good shape. No erosion issues were noted.

A general observation at the inspection is that substantial redevelopment of the property has occurred. A manufacturing facility was constructed in the former OU 3 CCA wood treatment area several years ago. A new janitorial supply warehouse facility has been completed adjacent to the OU 1/OU 3 organic-contaminated soil remediation area. An office/commercial plaza has also been constructed on the far northern portion of the site.

Additionally, the site's groundwater remedial infrastructure is now within the State's "one call" system (Gopher One), to address concerns that might otherwise arise in the course of site and adjacent area redevelopment.

A site inspection checklist is included as Appendix C of this report.

Interviews

Mr. Grant Wyffels, Director of Public Works of the City of New Brighton was notified by the MPCA that a five-year review was being performed. Mr. Wyffels did not express a significant concern regarding the status and protectiveness of the remedy.

VII. Technical Assessment

Question A: Is the remedy functioning as intended by the decision documents?

The review of documents, Applicable, Relevant and Appropriate Requirements ARARs, risk assumptions and the results of the inspection indicates that the remedy is functioning as intended by the ROD.

OU 1/OU 3 Metals and Organic-Contaminated Soil Remediation

The OU 3 metals-contaminated soils remedial action was completed in January 1998. The OU 1/OU 3 organics-contaminated soils remedial action was completed in August 2002. The on-site RCRA cap was completed in November 2001.

The OU 1/OU 3 organics remedial action was delayed to allow for relocation of the Williams Pipeline gasoline pipeline which was placed below the contamination in OU1 and still runs beneath the OU 1 RCRA cap.

The cap is in good condition and is regularly maintained. The metals and organic soil remedial actions have successfully remediated the direct contact threat posed by these soils.

Ground Water Remediation

The ground water extraction and treatment system is operating and functioning properly. A review of records through July 2005 indicates that approximately 218 million gallons of contaminated groundwater have been pumped and either treated by the ground water pump and treat facility or discharged directly to the sanitary sewer since startup in December 1999. Since January 2001, over 1000 gallons of NAPL has been manually extracted from former extraction well EW 8 at very little cost. The ground water extraction and treatment system has undergone a formal optimization study (RSE study) and several significant changes were made which improved operation and reduced operating costs. The system is very well maintained on a daily basis and routine maintenance is performed on a regular schedule.

Annual ground water monitoring is performed to assess the progress in achieving the site cleanup goals. The results of the November 2005 round of sampling confirm that the levels of site contaminants are improving in some areas and overall have not increased. It was observed that chromium concentrations in the area around extraction well EW 4 had declined to below the cleanup level and thus EW 4 has been shut down. This is an initial indication of success in

remediating the plume. An annual assessment is performed of the effectiveness of the capture zone of the groundwater extraction system using groundwater level measurements in a computer program. This assessment has determined that the groundwater extraction system is capturing the contaminant plume.

Ecological Sampling

No active remediation of ecological habitats in the site area was required by the ROD. However, monitoring is periodically performed to assure there are no ecological risks. Surface water, sediment, fish and crayfish samples were collected from ecological habitats near the site in July 2005. The 2005 surface water data did not show any risks to aquatic life from site related chemicals. Site related contaminants were elevated above background and/or risk based benchmarks in sediments at two water bodies nearest the site. However, no toxic effects on growth or survival rates were observed in toxicity tests conducted with the sediments from these water bodies. The toxicity tests suggest that even though there are elevated levels of contaminants in some sediments, these contaminants have low availability for biological intake and do not pose a risk to benthic life. Fish and crayfish were analyzed for PCP, TCP and dioxin/furans. With one exception, PCP and TCP were not detected. Dioxin/furans were routinely detected but the concentrations were similar to background and less than risk-based benchmarks.

Implementation of Institutional Controls and Other Measures

Please see the discussion on institutional controls in Section VI. of this report.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives used at the time of the remedy selection still valid?

Changes in Standards and to be Considered

At the MacGillis & Gibbs site, the soil cleanup has been completed and the risk-based soil cleanup goals have been met. The OU 1 RCRA hazardous waste landfill cap is complete and has an asphalt cover and two feet of clean material over a liner which provides parking for a newly constructed Dalco warehouse facility on the site. All of the identified ARARs were met at the time of cleanup. ARARS that still must be met at this time and that have been evaluated include the Safe Drinking Water Act (SDWA) (40 CFR 141.11-141-16) from which some of the ground water cleanup goals were derived, State of Minnesota Health-Based Risk Limits (HRLs) and the Clean Water Act Standards for Discharge to Publicly-Owned Treatment Works (40 CFR Part 403).

Standards for the chemicals of concern in the ground water have not become more stringent since the signing of the ground water related ROD in 1994, with the exception of the Safe Drinking Water Act Maximum Contaminant Levels (MCL) for dioxin and arsenic and the HRL for pentachlorophenol. The MCL for dioxin decreased from 50 picograms per liter (parts per

quadrillion) to 30 picograms per liter. The ground water cleanup goal set in the ROD for dioxin was 12 picograms per liter and was based on site specific risk. The site ground water cleanup goal for dioxin is more stringent than the new MCL for dioxin and thus remains protective. The MCL for arsenic decreased from 50 ug/l to 10 ug/l. The ground water cleanup goal set in the ROD for arsenic was 5 ug/l. The site cleanup goal for arsenic is more stringent than the new MCL for arsenic and thus remains protective. The HRL for pentachlorophenol has decreased from 200 ug/l to 3 ug/l. The ground water cleanup goal for pentachlorophenol is 1 ug/l which was based on the federal MCL and thus remains protective.

In addition, the on-site treatment plant has been effective in removing site contaminants and is in compliance with the pretreatment permit issued by the Metropolitan Council Environmental Services (MCES) under 40 CFR Part 403 of EPA rules.

Changes in Exposure Pathways, Toxicity and Other Contaminant Characteristics

There are no new exposure pathways or changes to existing exposure pathways. The exposure assumptions used to develop the Human Health Risk Assessment are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions, or the to cleanup levels developed from them, is warranted. The direct contact exposure pathway has been eliminated by the soil cleanup and the RCRA cap installed in the OU 1 area. There is no current exposure to contaminated ground water and the ground water remedy is progressing as expected.

In summary, the exposure assumptions and toxicity data are still valid and cleanup levels established are protective.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

There is no other information that calls into question the protectiveness of the remedy.

Technical Assessment Summary

According to the data reviewed and the site inspection, the remedy is substantially functioning as intended by the RODs and the ROD amendment. There have been no changes in the physical conditions at the site, standards, contaminant toxicity or exposure pathways that would affect the protectiveness of the remedy. There is no other new information that calls into question the protectiveness of the remedy.

VIII. Issues

Two issues were identified during the five-year review and also the site inspection.

Table 3: Identified Issues

Five-Year Review Issues	Affects Protectiveness (Y/N)	Affects Protectiveness (Y/N)
	Current	Future
Title and property transfer documents should be reviewed to ensure necessary restrictions for on-site use are adequately addressed.	N	Y
Residential wells within the plume boundary are not subject to prohibition on use	N	Y

IX. Recommendations and Follow-up Actions

The following is a recommendation and or follow-up action to the issue identified above:

Table 4: Recommendations and Follow-up Actions

Issues	Recommendations Follow-up Actions	Party Responsible	Oversight Agency	Mile- stone Date	Affects Protectiveness (Y/N)	
					current	future
Title and property transfer documents may not adequately address restrictions	* See below	EPA/MPCA/ City	EPA/ MPCA	March 2007	N	Y

A small number of private wells remain in the plume boundary without prohibition of use	Consider abandonment of private wells	EPA/MPCA	EPA/MPCA	June 2007	N	Y
---	---------------------------------------	----------	----------	-----------	---	---

* Develop an IC Action Plan that includes a provision for 1) evaluating whether effective ICs have been implemented on-site; 2) implementing corrective measures, if necessary; 3) developing IC maps; and 4) ensuring that effective procedures are in place to provide regular inspection of ICs at the site and annual certification to EPA that ICs are in place and effective.

X. Protectiveness Statement

The remedy at the MacGillis & Gibbs/Bell Lumber & Pole site is functioning as intended and is protective of human health and the environment in the short-term; however in order for the remedy to be protective in the long-term, follow-up actions need to be taken. Long-term protectiveness will be achieved when the ground water cleanup goals are met. In the interim, the adequacy of institutional controls will be determined by assuring that all necessary restrictions have been recorded to prevent exposure to contaminants in soil and ground water on-site. In addition, the Agencies will consider whether to abandon the small number of privately owned wells in the plume area.

XI. Next Review

The MacGillis & Gibbs Company/Bell Lumber & Pole Company site is subject to CERCLA 121(c)'s requirement of ongoing five-year reviews. U.S. EPA, or the MPCA if it is delegated to do so by U.S. EPA, will conduct another five-year review five years from the date of this review.

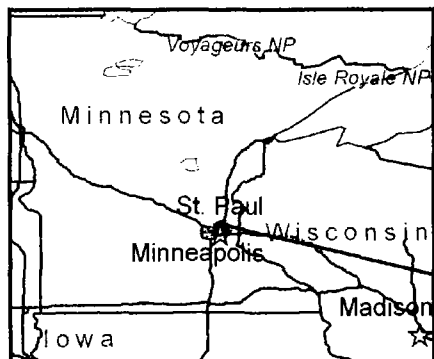
Site Location

Superfund
U.S. Environmental Protection Agency

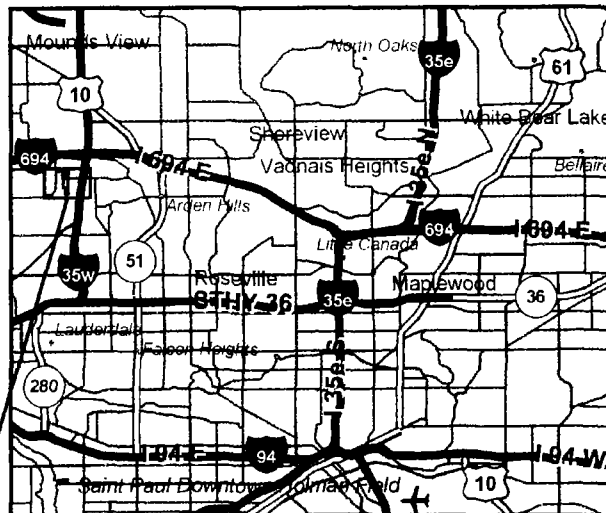


MacGillis & Gibbs Ramsey County, MN

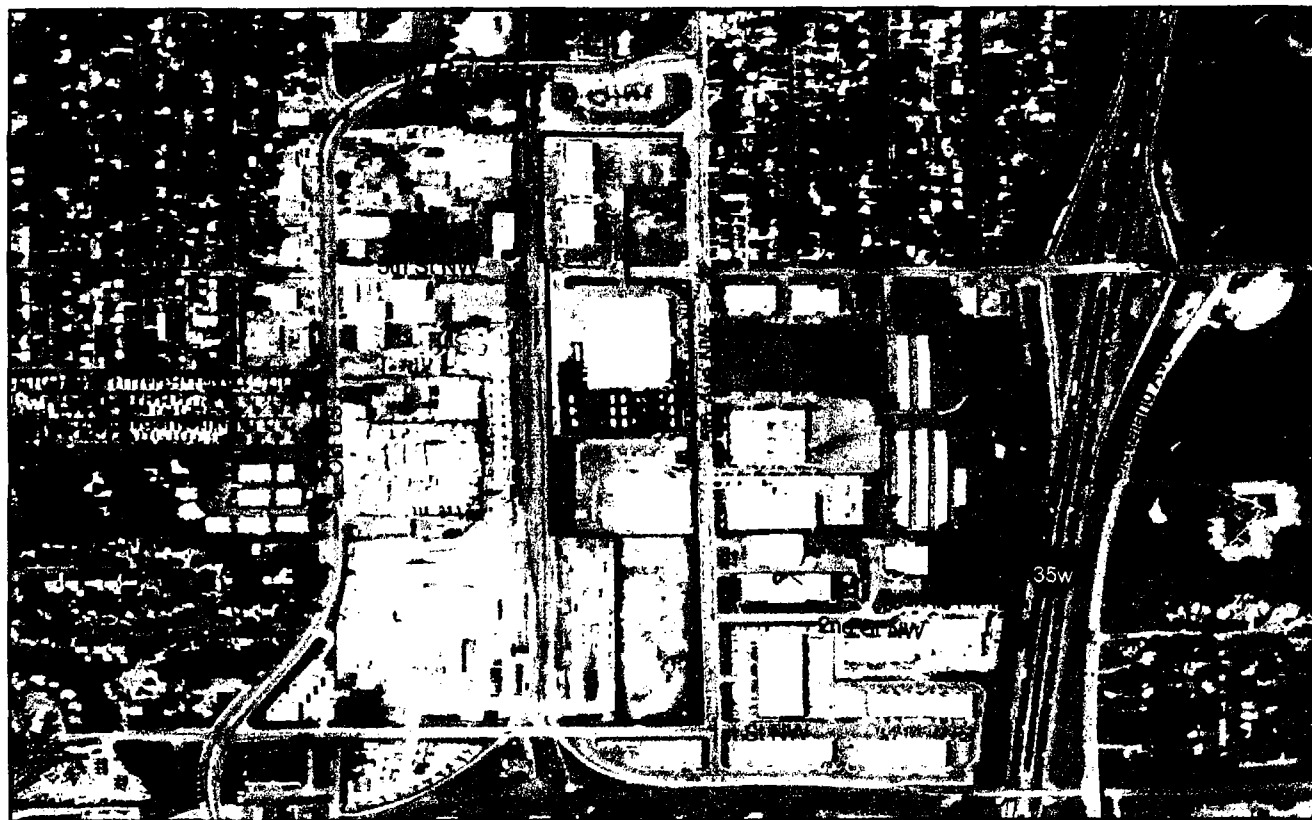
MND006192694



State



County



Site

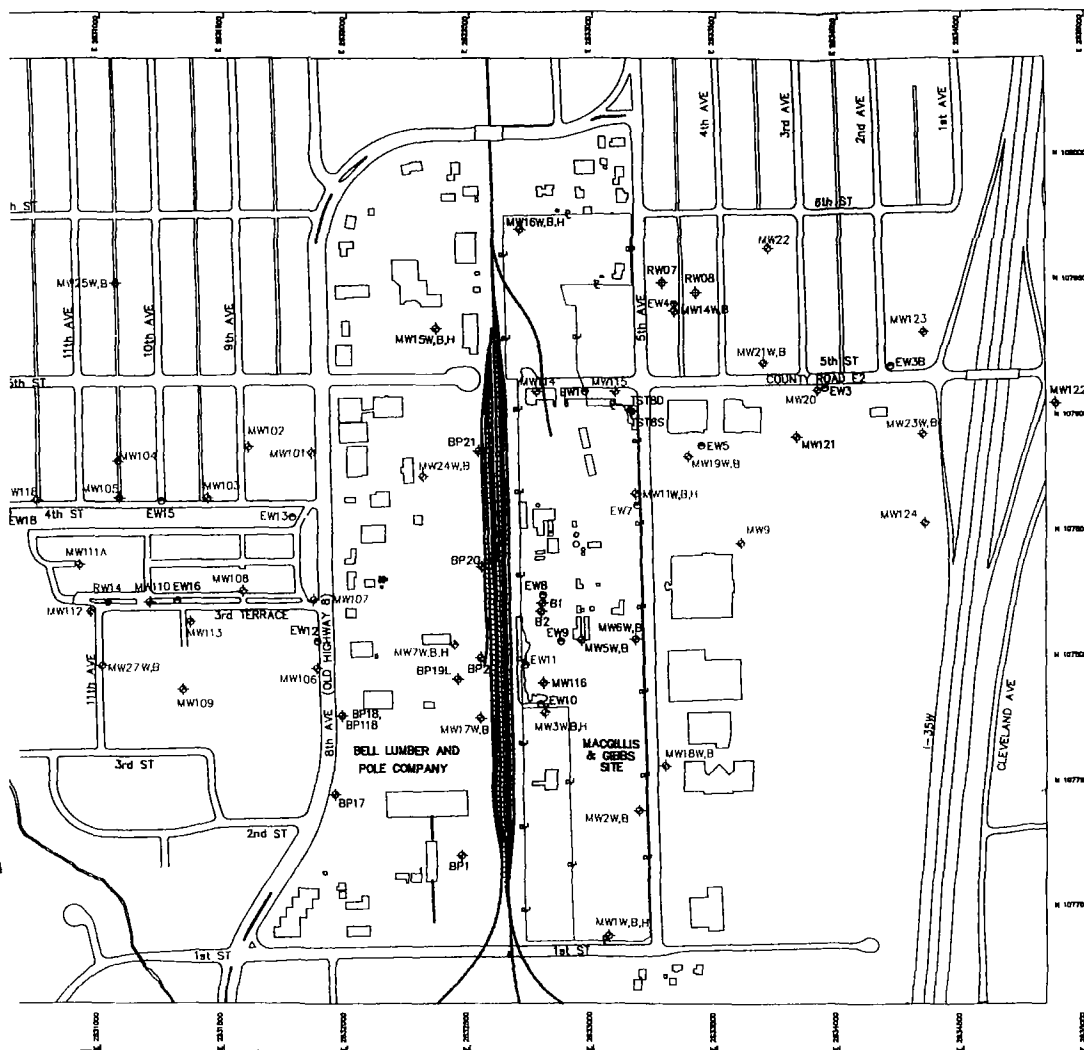
Figure 1

Created by Sarah Backhouse
U.S. EPA Region 5 on 8/22/06
Image Date: 2003

Legend

MacGillis & Gibbs Site





LEGEND:

- RAILROAD
- PROPERTY LINE (APPROXIMATE)
- EXISTING MONITORING WELL AND IDENTIFICATION NUMBER
- EXTRACTION WELL LOCATION IDENTIFICATION NUMBER
- MONITORING/EXTRACTION WELL IDENTIFICATION NUMBER DURING THE NOVEMBER, 2004 GROUNDWATER EVENT
- STRUCTURES

BASE MAP PREPARED BY M/C CORPORATION IN MARCH 1997 BY PHOTOGRAMMETRIC METHOD FROM PHOTOGRAPHY DATED MAY 18, 1998 OF RAMSEY

SCALE IN FEET

0 500 1000

environment

FIGURE 2 MONITORING WELL SAMPLE LOCATION MACGILLIS AND NEW BRIGHTON,



Legend

- EW1 Extraction Well Location and Identification Number

Graphics generated by OPDATE™ software developed by Subterranean Research, Inc. in conjunction with Tecplot 10 data visualization software.

Base map prepared by Martinez Corporation in March 1997 by photogrammetric methods from photography of Ramsey County Dated May 18, 1996

The capture zone analysis utilized water levels and extraction rates from December 2005. PCP concentrations are from the November 2005 sampling event. PCP concentration contours do not reflect the free product present in EW8. Simulated particles were released from the boundaries of the modeled area and allowed to migrate through areas of potentially ineffective groundwater capture. The non-capture areas are delineated by the black path-lines. Areas with no black path-lines are subject to groundwater capture.

Estimated PCP Contaminant Area and Capture Zone

MacGillis & Gibbs Site
New Brighton, Minnesota

FIGURE 3

APPENDIX B

Bibliography

Remedial Investigation and Feasibility Study Work Plan
MacGillis and Gibbs/Bell Lumber and Pole E & E, 2/5/91

Record of Decision OU2, 9/30/91

Record of Decision OU1, 12/31/92

Record of Decision OU3, 9/22/94

Agreement and Covenant not to Sue City of New Brighton/DOI/EPA/MPCA, 6/26/97

Amendment to Record of Decision for OU1 and OU3, 9/30/99

Five Year Review Report, 9/2001

Completion Report for the Relocation of Williams Pipe Line Company's #2-8" Minneapolis-Duluth Line through the MacGillis Gibbs Pole Yard New Brighton, Minnesota; Williams Pipeline, October 11, 2001

Remedial Action Report; MacGillis and Gibbs Superfund Site, New Brighton, Minnesota
EPA Cerclis ID Number MND006192694; Treatment of Contaminated Soil (OU1 and OU3),
Terracon, 2/27/03

Draft Data Evaluation Cleanup Status Report No.5, MacGillis & Gibbs Site, Ecology and Environment, Inc., 6/2006

Draft Phase I Ecological Monitoring Report, MacGillis & Gibbs Site, Ecology and Environment Inc., 6/2006

RECEIVED

AUG 14 2006

OSWER No. 9355.7-03B-P

Please note that "O&M" is referred to throughout this checklist. At sites where Long-Term Response Actions are in progress, O&M activities may be referred to as "system operations" since these sites are not considered to be in the O&M phase while being remediated under the Superfund program.

Five-Year Review Site Inspection Checklist (Template)

(Working document for site inspection. Information may be completed by hand and attached to the Five-Year Review report as supporting documentation of site status. "N/A" refers to "not applicable.")

I. SITE INFORMATION	
Site name: <u>Mac Gillis & Gibbs</u>	Date of inspection: <u>7/27/06</u>
Location and Region: <u>New Brighton, MN</u>	EPA ID: <u>MND 006 192694</u>
Agency, office, or company leading the five-year review: <u>MPCA</u>	Weather/temperature:
Remedy Includes: (Check all that apply) <input checked="" type="checkbox"/> Landfill cover/containment <input type="checkbox"/> Access controls <input type="checkbox"/> Institutional controls <input checked="" type="checkbox"/> Groundwater pump and treatment <input type="checkbox"/> Surface water collection and treatment <input type="checkbox"/> Other _____ <input type="checkbox"/> Monitored natural attenuation <input type="checkbox"/> Groundwater containment <input type="checkbox"/> Vertical barrier walls	
Attachments: <input type="checkbox"/> Inspection team roster attached <input type="checkbox"/> Site map attached	
II. INTERVIEWS (Check all that apply)	
1. O&M site manager _____ Name _____ Title _____ Date _____ Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. _____ Problems, suggestions; <input type="checkbox"/> Report attached _____	
2. O&M staff <u>Rich Ripley</u> <u>Plant Operator</u> <u>7/27/06</u> Name _____ Title _____ Date _____ Interviewed <input type="checkbox"/> at site <input type="checkbox"/> at office <input type="checkbox"/> by phone Phone no. <u>651-633-9517</u> Problems, suggestions; <input type="checkbox"/> Report attached _____	

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency MPCA
 Contact Nile Fellows Name Project Manager Title _____ Date _____ Phone no. _____
 Problems; suggestions; G Report attached _____

Agency _____
Contact _____

Name	Title	Date	Phone no.
Problems; suggestions; G Report attached _____			

Agency _____
 Contact _____

Name	Title	Date	Phone no.
Problems; suggestions; G Report attached _____			

Agency _____				
Contact _____				
Name _____		Title _____	Date _____	Phone no. _____
Problems; suggestions; G Report attached _____				

4. **Other interviews (optional)** G Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)				
1.	O&M Documents G O&M manual G As-built drawings G Maintenance logs Remarks _____	<input checked="" type="checkbox"/> G Readily available <input checked="" type="checkbox"/> G Readily available <input checked="" type="checkbox"/> G Readily available	G Up to date G Up to date G Up to date	G N/A G N/A G N/A
2.	Site-Specific Health and Safety Plan G Contingency plan/emergency response plan Remarks _____	<input checked="" type="checkbox"/> G Readily available <input checked="" type="checkbox"/> G Readily available	G Up to date G Up to date	G N/A G N/A
3.	O&M and OSHA Training Records Remarks _____	<input checked="" type="checkbox"/> G Readily available	G Up to date	<input checked="" type="checkbox"/> G N/A
4.	Permits and Service Agreements G Air discharge permit G Effluent discharge G Waste disposal, POTW G Other permits _____ Remarks _____	G Readily available G Readily available G Readily available G Readily available	G Up to date G Up to date <input checked="" type="checkbox"/> G Up to date G Up to date	G N/A G N/A G N/A G N/A
5.	Gas Generation Records Remarks _____	G Readily available	G Up to date	<input checked="" type="checkbox"/> G N/A
6.	Settlement Monument Records Remarks _____	G Readily available	G Up to date	<input checked="" type="checkbox"/> G N/A
7.	Groundwater Monitoring Records Remarks _____	<input checked="" type="checkbox"/> G Readily available	G Up to date	G N/A
8.	Leachate Extraction Records Remarks _____	G Readily available	G Up to date	<input checked="" type="checkbox"/> G N/A
9.	Discharge Compliance Records G Air G Water (effluent) Remarks _____	G Readily available G Readily available	G Up to date <input checked="" type="checkbox"/> G Up to date	<input checked="" type="checkbox"/> G N/A G N/A
10.	Daily Access/Security Logs Remarks _____	G Readily available	G Up to date	<input checked="" type="checkbox"/> G N/A

IV. O&M COSTS**1. O&M Organization**

G State in-house

G Contractor for State

G PRP in-house

G Contractor for PRP

G Federal Facility in-house

G Contractor for Federal Facility

G Other

EPA contractor for Long Term Remedial Action**2. O&M Cost Records**

G Readily available

G Up to date

G Funding mechanism/agreement in place

Original O&M cost estimate _____ G Breakdown attached

Total annual cost by year for review period if available

From _____	To _____	_____	G Breakdown attached
Date	Date	Total cost	

From _____	To _____	_____	G Breakdown attached
Date	Date	Total cost	

From _____	To _____	_____	G Breakdown attached
Date	Date	Total cost	

From _____	To _____	_____	G Breakdown attached
Date	Date	Total cost	

From _____	To _____	_____	G Breakdown attached
Date	Date	Total cost	

3. Unanticipated or Unusually High O&M Costs During Review Period

Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS G Applicable G N/A**A. Fencing****1. Fencing damaged**

G Location shown on site map

G Gates secured

G N/A

Remarks _____

B. Other Access Restrictions**1. Signs and other security measures**

G Location shown on site map

G N/A

Remarks

Appropriate signs in place

C. Institutional Controls (ICs)					
1.	Implementation and enforcement Site conditions imply ICs not properly implemented G Yes G No G N/A Site conditions imply ICs not being fully enforced G Yes G No G N/A Type of monitoring (e.g., self-reporting, drive by) _____ Frequency _____ Responsible party/agency _____ Contact _____ <div style="display: flex; justify-content: space-between; margin-top: 10px;"> Name Title Date Phone no. </div> Reporting is up-to-date G Yes G No G N/A Reports are verified by the lead agency G Yes G No G N/A Specific requirements in deed or decision documents have been met G Yes G No G N/A Violations have been reported G Yes G No G N/A Other problems or suggestions: G Report attached _____ _____ _____				
2.	Adequacy G ICs are adequate G ICs are inadequate G N/A Remarks _____ _____ _____				
D. General					
1.	Vandalism/trespassing G Location shown on site map <input checked="" type="radio"/> G No vandalism evident Remarks <u>NONE NOTED</u>				
2.	Land use changes on site G N/A Remarks <u>Dalco + Penatell Companies have expanded on</u> <u>come on site</u>				
3.	Land use changes off site G N/A Remarks <u>The site is bounded on S by Industrial development</u>				
VI. GENERAL SITE CONDITIONS					
A. Roads G Applicable G N/A					
1.	Roads damaged G Location shown on site map G Roads adequate <input checked="" type="radio"/> G N/A Remarks _____ _____				

B. Other Site Conditions

Remarks

The cover on OUL is good
condition**VII. LANDFILL COVERS** ☒ Applicable ☐ N/A**A. Landfill Surface**

- | | | | |
|----|---|--|---|
| 1. | Settlement (Low spots)
Areal extent _____
Remarks _____ | G Location shown on site map
Depth _____ | <input checked="" type="radio"/> Settlement not evident |
| 2. | Cracks
Lengths _____ Widths _____ Depths _____
Remarks _____ | G Location shown on site map | <input checked="" type="radio"/> Cracking not evident |
| 3. | Erosion
Areal extent _____
Remarks _____ | G Location shown on site map
Depth _____ | <input checked="" type="radio"/> Erosion not evident |
| 4. | Holes
Areal extent _____
Remarks _____ | G Location shown on site map
Depth _____ | <input checked="" type="radio"/> Holes not evident |
| 5. | Vegetative Cover <input checked="" type="radio"/> Grass <input checked="" type="radio"/> Cover properly established <input type="radio"/> No signs of stress
G Trees/Shrubs (indicate size and locations on a diagram)
Remarks _____ | | |
| 6. | Alternative Cover (armored rock, concrete, etc.) <input checked="" type="radio"/> N/A
Remarks _____ | | |
| 7. | Bulges
Areal extent _____
Remarks _____ | G Location shown on site map
Height _____ | <input checked="" type="radio"/> Bulges not evident |

8.	Wet Areas/Water Damage	<input checked="" type="checkbox"/> Wet areas/water damage not evident	
	G Wet areas	G Location shown on site map	Areal extent _____
	G Ponding	G Location shown on site map	Areal extent _____
	G Seeps	G Location shown on site map	Areal extent _____
	G Soft subgrade	G Location shown on site map	Areal extent _____
	Remarks _____		
9.	Slope Instability	G Slides	G Location shown on site map <input checked="" type="checkbox"/> No evidence of slope instability
	Areal extent _____		
	Remarks _____		
B. Benches G Applicable <input checked="" type="checkbox"/> N/A			
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)			
1.	Flows Bypass Bench	G Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
2.	Bench Breached	G Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
3.	Bench Overtopped	G Location shown on site map	<input checked="" type="checkbox"/> N/A or okay
	Remarks _____		
C. Letdown Channels G Applicable <input checked="" type="checkbox"/> N/A			
(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)			
1.	Settlement	G Location shown on site map	<input checked="" type="checkbox"/> No evidence of settlement
	Areal extent _____	Depth _____	
	Remarks _____		
2.	Material Degradation	G Location shown on site map	G No evidence of degradation
	Material type _____	Areal extent _____	
	Remarks _____		
3.	Erosion	G Location shown on site map	G No evidence of erosion
	Areal extent _____	Depth _____	
	Remarks _____		

4.	Undercutting Areal extent _____ Remarks _____	G Location shown on site map Depth _____	G No evidence of undercutting
5.	Obstructions G Location shown on site map Size _____ Remarks _____	Type _____	G No obstructions Areal extent _____
6.	Excessive Vegetative Growth G No evidence of excessive growth G Vegetation in channels does not obstruct flow G Location shown on site map Remarks _____	Type _____	Areal extent _____
D. Cover Penetrations G Applicable <u>(G)</u> N/A			
1.	Gas Vents G Properly secured/locked G Evidence of leakage at penetration G N/A Remarks _____	G Active G Functioning	G Passive G Routinely sampled G Good condition G Needs Maintenance
2.	Gas Monitoring Probes G Properly secured/locked G Evidence of leakage at penetration Remarks _____	G Functioning	G Routinely sampled G Good condition G Needs Maintenance G N/A
3.	Monitoring Wells (within surface area of landfill) G Properly secured/locked G Evidence of leakage at penetration Remarks _____	G Functioning	G Routinely sampled G Good condition G Needs Maintenance G N/A
4.	Leachate Extraction Wells G Properly secured/locked G Evidence of leakage at penetration Remarks _____	G Functioning	G Routinely sampled G Good condition G Needs Maintenance G N/A
5.	Settlement Monuments Remarks _____	G Located	G Routinely surveyed G N/A

E. Gas Collection and Treatment		G Applicable	<input checked="" type="radio"/> N/A
1.	Gas Treatment Facilities G Flaring G Thermal destruction G Collection for reuse G Good condition G Needs Maintenance Remarks _____		
2.	Gas Collection Wells, Manifolds and Piping G Good condition G Needs Maintenance Remarks _____		
3.	Gas Monitoring Facilities (e.g., gas monitoring of adjacent homes or buildings) G Good condition G Needs Maintenance G N/A Remarks _____		
F. Cover Drainage Layer		G Applicable	<input checked="" type="radio"/> N/A
1.	Outlet Pipes Inspected G Functioning G N/A Remarks _____		
2.	Outlet Rock Inspected G Functioning G N/A Remarks _____		
G. Detention/Sedimentation Ponds		G Applicable	<input checked="" type="radio"/> N/A
1.	Siltation Areal extent _____ Depth _____ G N/A G Siltation not evident Remarks _____		
2.	Erosion Areal extent _____ Depth _____ G Erosion not evident Remarks _____		
3.	Outlet Works G Functioning G N/A Remarks _____		
4.	Dam G Functioning G N/A Remarks _____		

H. Retaining Walls		G Applicable	<input checked="" type="radio"/> N/A
1.	Deformations Horizontal displacement _____ Rotational displacement _____ Remarks _____	G Location shown on site map	G Deformation not evident
2.	Degradation Remarks _____	G Location shown on site map	G Degradation not evident.
I. Perimeter Ditches/Off-Site Discharge		G Applicable	<input checked="" type="radio"/> N/A
1.	Siltation Areal extent _____ Depth _____ Remarks _____	G Location shown on site map	G Siltation not evident
2.	Vegetative Growth G Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____	G Location shown on site map	G N/A
3.	Erosion Areal extent _____ Depth _____ Remarks _____	G Location shown on site map	G Erosion not evident
4.	Discharge Structure Remarks _____	G Functioning	G N/A
VIII. VERTICAL BARRIER WALLS		G Applicable	<input checked="" type="radio"/> N/A
1.	Settlement Areal extent _____ Depth _____ Remarks _____	G Location shown on site map	G Settlement not evident
2.	Performance Monitoring Type of monitoring _____ G Performance not monitored Frequency _____ Head differential _____ Remarks _____	G Evidence of breaching	

IX. GROUNDWATER/SURFACE WATER REMEDIES		<input checked="" type="radio"/> Applicable	<input type="radio"/> N/A
A. Groundwater Extraction Wells, Pumps, and Pipelines		<input checked="" type="radio"/> Applicable	<input type="radio"/> N/A
1.	Pumps, Wellhead Plumbing, and Electrical <input type="radio"/> Good condition <input checked="" type="radio"/> All required wells properly operating <input type="radio"/> Needs Maintenance <input type="radio"/> N/A Remarks _____ _____ _____		
2.	Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input checked="" type="radio"/> Good condition <input type="radio"/> Needs Maintenance Remarks _____ _____ _____		
3.	Spare Parts and Equipment <input checked="" type="radio"/> Readily available <input type="radio"/> Good condition <input type="radio"/> Requires upgrade <input type="radio"/> Needs to be provided Remarks _____ _____ _____		
B. Surface Water Collection Structures, Pumps, and Pipelines		<input type="radio"/> Applicable	<input checked="" type="radio"/> N/A
1.	Collection Structures, Pumps, and Electrical <input type="radio"/> Good condition <input type="radio"/> Needs Maintenance Remarks _____ _____ _____		
2.	Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances <input type="radio"/> Good condition <input type="radio"/> Needs Maintenance Remarks _____ _____ _____		
3.	Spare Parts and Equipment <input type="radio"/> Readily available <input type="radio"/> Good condition <input type="radio"/> Requires upgrade <input type="radio"/> Needs to be provided Remarks _____ _____ _____		

C. Treatment System		G Applicable	G N/A
1.	Treatment Train (Check components that apply) G Metals removal G Air stripping G Filters G Additive (e.g., chelation agent, flocculent) G Others G Good condition G Sampling ports properly marked and functional G Sampling/maintenance log displayed and up to date G Equipment properly identified G Quantity of groundwater treated annually G Quantity of surface water treated annually Remarks	G Oil/water separation G Carbon adsorbers	G Bioremediation
2.	Electrical Enclosures and Panels (properly rated and functional) G N/A Remarks	G Good condition G Needs Maintenance	
3.	Tanks, Vaults, Storage Vessels G N/A Remarks	G Good condition G Proper secondary containment G Needs Maintenance	
4.	Discharge Structure and Appurtenances G N/A Remarks	G Good condition G Needs Maintenance	
5.	Treatment Building(s) G N/A G Chemicals and equipment properly stored Remarks	G Good condition (esp. roof and doorways) G Needs repair	
6.	Monitoring Wells (pump and treatment remedy) G Properly secured/locked G All required wells located Remarks	G Functioning G Needs Maintenance	G Routinely sampled G Good condition G N/A
D. Monitoring Data			
1.	Monitoring Data G Is routinely submitted on time	G Is of acceptable quality	
2.	Monitoring data suggests: G Groundwater plume is effectively contained	G Contaminant concentrations are declining	

D. Monitored Natural Attenuation	
1. Monitoring Wells (natural attenuation remedy)	
<input checked="" type="checkbox"/> Properly secured/locked	<input checked="" type="checkbox"/> Functioning
<input checked="" type="checkbox"/> Routinely sampled	<input checked="" type="checkbox"/> Good condition
<input type="checkbox"/> All required wells located	<input type="checkbox"/> Needs Maintenance
<input type="checkbox"/> N/A	
Remarks: well EW-15 is off because of a lightning strike	
X. OTHER REMEDIES	
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.	
XI. OVERALL OBSERVATIONS	
A. Implementation of the Remedy	
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).	
Remedy is working. NAPL treatment building has been turned off and is no longer used.	
well EW-8 has product and is hand baled.	
B. Adequacy of O&M	
Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.	
O&M is good. System is running and doing what it is designed for.	
Operator keeps place clean and is on top of things. Buildings very clean.	

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs, that suggest that the protectiveness of the remedy may be compromised in the future.

N/A

D. Opportunities for Optimization

Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

The operator is continually looking
to improve operation.



**EPA Reviews
MacGillis and Gibbs Co./
Bell Lumber & Pole Co.
Superfund Site
New Brighton, Minnesota**

U.S. Environmental Protection Agency, with assistance from the Minnesota Pollution Control Agency, (MPCA) is reviewing the effectiveness of the cleanup at the MacGillis and Gibbs Co./ Bell Lumber & Pole Co. Superfund site. Superfund law requires five-year reviews of sites where the cleanup is either done or in progress but hazardous waste remains on-site. These five-year reviews are done to ensure that the cleanup remains effective and protects human health and the environment. This is the second five-year review for this site.

The first review, completed in 2001, concluded that the cleanup is protecting people and the environment.

Extensive redevelopment has occurred at the site, including two light industrial buildings, two office buildings and a retail building.

Five-year reviews look at:

- site information
- how the cleanup was done
- how well the cleanup is working any future actions needed

Site records can be viewed at the offices of the Minnesota Pollution Control Agency, 520 Lafayette Road N., St. Paul Minn. Contact Chris Malec of MPCA at (651) 297-5177 for details or further assistance. Site records can also be viewed at the Ramsey County Library, Arden Hills Branch, 1941 West County Road E-2.

Questions or concerns regarding the review should be directed to:

Nile Fellows
Project Manager
MPCA
520 Fayette Road N.
St. Paul, MN 55155
(651) 296-7299
nile.fellows@pca.state.mn.us